but also for laboratory purposes. The pure potash required for certain glasses is obtained by an electrolytic process, and we need never again go to Germany for it or for the glass itself.

We are meeting all demands for such synthetic organic drugs as salicylic acid and aspirin, phenacetin, salvarsan, and many others, photographic chemicals, synthetic dyes and associated products, as well as hundreds of similar substances of which Germany had the monopoly. The magneto industry has established itself in a sound position, and the German instrument has been displaced for good. Hard porcelain for electrical fittings and laboratory ware is now British-made, thanks to scientific work and industrial enterprise. We produce all the tungsten required for special steels and metallic filament lamps, and can supply the world if necessary; we make aluminium alloys superior to any of the German pre-war products, and like success has been attained in other directions.

While our military, naval, and air services have been actively engaged in battle, the allied forces of science and industry have been making advances no less noteworthy, though their conquests do not occupy much public attention. What has been achieved in scientific industry during the last four years is most creditable both to scientific workers and to manufacturers, and we are glad that steps have been taken to enlighten the public upon this matter by the organisation of a British Scientific Products Exhibition, which will be opened on August 12 at King's College, London.

The British Science Guild, with the assent of the Ministry of Munitions and the approval of the Board of Trade, has arranged for this exhibition to be held for four weeks during August and September. The exhibition will include products and appliances of scientific and industrial interest which prior to the war were obtained chiefly from enemy countries, but are now produced in the United Kingdom. The chief purpose of the exhibition is to make clear the necessity of scientific research with respect to the application of its results in the arts and industries; and, further, to display to the public and to those intimately concerned how much has been successfully achieved in this regard since the advent of the war in the production of articles of prime importance, not only for the home, but also for foreign markets, hitherto manufactured in or imported from other countries.

Such an exhibition at the present time will have a most stimulating influence upon scientific and industrial research and upon manufactures, and the highest permanent interests of the nation will be promoted thereby. His Majesty the King has shown his interest in the exhibition by becoming the Patron; while the Marquess of Crewe is president, and the vice-presidents include the Prime Minister and other leading members of the Government as well as distinguished representatives of scientific, educational, and industrial institutions. More than 250 manufacturers are sending exhibits; and the Air Ministry is arranging a large display of its scientific activities, as well as the Food Production Department. It is understood, of course, that some manufacturers—for example, opticians and scientific instrument makers—are unable to send exhibits on account of their reduced staffs and the insistent demands made for immediate delivery of all instruments or appliances produced by them; nevertheless, there is no doubt that the exhibition will afford an impressive object-lesson of British scientific activity and industrial enterprise.

The manufacturers who are participating in the exhibition are doing so largely from patriotic motives, as no goods will be sold, and any advantage they may derive from their display will be indirect. What is desired chiefly is to educate the public to know that British science and British industry can, when conditions are favourable, excel in manufactures which were popularly supposed to be essentially German. We have recovered lost ground, and we need never lose it again if the development of industry through science is made a national aim.

It might have been supposed that the Department of Scientific and Industrial Research would have been able to afford financial aid to such an exhibition as that shortly to be opened, but we understand that neither it nor any other Government Department has yet contributed a grant towards the heavy expenses involved. The whole cost will have to be met by voluntary contributions, and it is to be hoped that the patriotic efforts of the British Science Guild to give confidence in our scientific strength and encouragement to its industrial application will receive generous support from all who are in the position to give it. Donations should be sent to the Treasurer, British Scientific Products Exhibition, British Science Guild, 199 Piccadilly, London, W. 1.

NOTES.

ATTENTION has been directed several times in these columns to the progress of the dyes industry in this country, and last week a brief statement was given of the proposals of the Government in the direction of giving further assistance to the firms engaged in the manufacture. The Supplementary Estimate referred to was discussed in the House of Commons on Thursday, July 25. Some opposition was raised to the scheme mainly on the ground that there was a lack of information before the House as to what had been done with the money already advanced, and how the present proposed grant of 600,000*l.* towards extensions and plant was going to be utilised. It would undoubtedly be interesting to have a clear statement as to the disposal of the funds already allocated to "British Dyes, Limited," but most of the speakers on Thursday last failed to appreciate the fact that the dyes industry is not only of the first importance to the country, but also a manufacture of a peculiar character, dependent as it is on the constant association of research in the laboratory with processes in the works. The amount of capital invested in the manufacture in Germany may be roughly estimated at about ten times that which is at the disposal of firms in this country, and during the first few years they will require all the encouragement and assistance of every kind—financial and protective—which can be afforded.

THE progress made in this country in the production of laboratory requirements formerly imported has been referred to frequently in these columns. We learn that arrangements have been made at the National Physical Laboratory for the testing of scientific glassware and porcelain and of filter-paper. For the present, while the organisation is in course of development, firms sending vessels for examination will be required to give notice (on forms provided for the purpose) of their wish to have apparatus examined not less than a week before dispatching the goods. The tests will include volumetric tests of graduated vessels and tests on the resistance of vessels to chemical action and their suitability for use in chemical operations. In the latter case the tests to be applied have been discussed with the Glass Research Committee of the Institute of Chemistry. With regard to the volumetric accuracy of glassware the tests will be divided into (1) vessels of the highest scientific accuracy, and (2) vessels intended to possess only commercial accuracy. It is intended that those in the first category shall be examined at Teddington, and that those in the second shall eventually be tested locally when centres for the work have been established. Information with regard to the scheme is obtainable from the director.

WE regret to announce the death on July 28, in his seventy-ninth year, of Dr. F. T. Roberts, University College, London and author of a "Handbook of the Theory and Practice of Medicine" and many professional papers, as well as of articles in Quain's "Dictionary of Medicine," of which he was formerly the assistant editor.

MR. FRANK N. MEYER, a botanical expert on the staff of the American Department of Agriculture, was recently found drowned in the Yangtse River. For nearly ten years he had travelled as an explorer through China, Turkestan, and Siberia, and had introduced into the United States hundreds of species and varieties of Eastern plants.

THE death is announced, in his eightieth year, of Dr. George M. Searle, of Washington, D.C. Dr. Searle graduated at Harvard in 1857, and shortly afterwards entered the service of the U.S. Coast Survey. He next became assistant professor of mathematics in the U.S. Naval Academy. In later life he devoted himself especially to astronomy. He established the observatory in the Catholic University at Washington, where for several years he held the chair of mathematics.

WE regret to note that the *Engineer* for July 26 records the death on July 18 of Mr. Edmund Herbert Stevenson. Mr. Stevenson, who was sixty-five years of age, was responsible for the design and execution of many gas, water, and drainage works, and was joint author of books dealing with legislation affecting gas and water undertakings and with the water supply of the metropolis. He was a well-known expert witness, and a member of the Institution of Civil Engineers.

THE death occurred on July 26, in his sixty-fourth year, of Mr. Henry R. Knipe, who produced a sumptuous volume about twelve years ago entitled "Nebula to Man." The work was an attempt to sketch in rhyme the evolution of the earth on the nebular hypothesis, the subsequent sea and land movements, and successive appearances of life, as revealed by the geological strata. It was embellished by a remarkable series of illustrations of prehistoric scenes and creatures, fourteen reproduced in colour and seventy-seven by the half-tone process, and all of them by artists distinguished for their skill in portraying such subjects.

WE have just learned that Prof. Vladimir Amalitsky, of Warsaw, died suddenly at Kislovodsk, in the Caucasus, on December 28, 1917. Born in Volhynia in 1860, Prof. Amalitsky completed his education at the University of Petrograd, where he made a special study of geology under Prof. Inostransev. Early in his career he was appointed professor of geology and palæontology in the University of Warsaw, and he eventually became director of the Polytechnic Institute in the same city. With the aid of his accomplished wife, he devoted himself to the study of the Permian rocks of Russia, and will always be remembered by his discovery of the great deposits of fossil reptiles in the cliffs of the northern Dvina. During 1899 and 1900 he excavated from these deposits numerous skeletons of Pariasaurus, Dicynodonts, and Theriodonts, closely resembling those from the Karoo formation of South Africa; and with them he found abundant remains of the typical Glossopteris flora. For several years Prof. Amalitsky superintended the preparation of the fossil skeletons in the museum of the University of Warsaw, but, unfortunately, they still remain undescribed. With Mme. Amalitsky he paid repeated visits to the British Museum, where he spent many months in special studies, but his only detailed publications were on the Permian freshwater bivalved shells. These small fossils, however, proved to be of exceptional interest, and in a paper read before the Geological Society of London in 1895 Prof. Amalitsky showed the close correspondence between the Permian species of Russia and the Karoo species of South Africa. Just before the outbreak of war he had arranged for one of his students to visit the British Museum to prepare himself for monographing the Russian Permian reptiles, but in the circumstances the work had to be postponed.

DR. A. D. BEVAN in his presidential address to the American Medical Association (see *Science*, June 21, p. 597) gives a good account of the organisation of the American medical profession for purposes of war. Surg.-Gen. Gorgas, who did such splendid work in Panama, is the chief of the American Army Medical Service, and he has enlisted to help him those who in civil life are recognised leaders in their special fields of work—men like Profs. Welch and Vaughan, Dr. de Schweinitz, and scores of others. There are in the United States more than 145,000 men and women practitioners, so that there is ample *personnel* to draw from. For an army in the field 10 per cent. of its numbers will be in the medical department. Thus for an army of 3,000,000 some 300,000 officers and men are required for medical and sanitary work, of whom 25,000 will be qualified physicians and surgeons. Already 25,000 medical practitioners have gone into the medical departments of the American Army and Navy, and it is proposed to raise the number to 30,000 this year.

PROF. HENRY LOUIS stated in his presidential address to the Society of Chemical Industry, at the recent meeting in Bristol, that the chemical industry in this country has been in some respects practically stationary during late years, and that this fact is most noticeable in the failure to take advantage of modern mechanical methods of handling large bodies of material; that, in other words, not sufficient has been made of the application of modern engineering methods to the chemical industries. As he points out, the difficulty lies in finding men who are equally conversant with the chemical problems to be solved and the engineering facilities available for their solution. A man with an adequate training both in chemistry and engineering is required. Such a man, and no other, has the right to call himself a chemical engineer. These men do exist in this country to-day, notably Sir George Beilby and Sir Dugald Clerk, but there are very few of them, and undoubtedly one of the most pressing problems which will have to be solved is the securing of an adequate supply of chemical engineers to maintain and develop the great industries of the country. Prof. Louis—who, by virtue of his position and his work, is associated more with the mining and metallurgical than with the chemical industries—devoted his address mainly to a consideration of the nature of the principal problems that a chemical engineer is called upon to conduct, and illustrated it by reference to a process which, though metallurgical in name, is chemical engineering in fact, namely, the hydrometallurgical extraction of gold by the cyanide process. The magnitude of this industry may be gauged from the fact that the Witwatersrand alone cyanides more than two and a quarter million tons of ore per month. This process has developed slowly from quite modest beginnings a quarter of a century ago. It has now reached a very high pitch of perfection.

THE report of the council of the Association of British Chemical Manufacturers was presented at the second annual general meeting of the association, held on July 11. Dr. C. Carpenter, who was in the chair, referred to several matters of public interest in the course of his remarks in moving the adoption of the report. Progress has been made with the Directory, the bulk of which is now in the printers' hands. The Directory will be printed in English, French, Italian, Spanish, Portuguese, Russian, and Japanese, and will thus provide for a very comprehensive circulation throughout the markets of the world of information relating to British manufacture in connection with chemical products. A very useful system has been put into operation for placing at the disposal of members of the association a good deal of information available at the Department of Overseas Trade and the Foreign Office. In dealing with the question of industrial alcohol the association has been very helpful. When it is remembered how long it has taken to educate the Government on the technical questions connected with the use of alcohol in chemical manufacture, it will be realised that a great advance has been made in the acceptance of the recommendations of the alcohol committee of the association. An information and statistical bureau has been established with the view of avoiding overlapping and waste of time and energy in research and manufacture. The council has supported the efforts of the Chemical Society in establishing a comprehensive library of chemical technology. With regard to the difficult problem of the dyes industry, Dr. Carpenter thinks that the course followed in 1915 in developing the explosive manufactures of the country, viz. to use all and everybody, great and small, in order to get all working in the direction of making up the shortage, is the right one; and that the concentration of the work in the hands of only a few firms, as appears to be the present policy in dealing with the dye situation, will not produce such a measure of national success as if all the resources of the country are utilised. Lord Moulton has accepted the position of president of the association. Mr. R. G. Perry, C.B.E., has been elected chairman, in succession to Dr. C. Carpenter, and the Rt. Hon. J. W. Wilson has been elected vice-chairman.

IT was recommended by the Imperial War Conference held in London last summer:—"That it is desirable to establish in London an Imperial Mineral Resources Bureau, upon which should be represented Great Britain, the Dominions, India, and other parts of the Empire." The importance of the matter has been urged on several occasions in the columns of NATURE (see, for example, the issues for October 5, 1916, and September 13, 1917). By direction of the War Cabinet, the Minister of Munitions, in May, 1917, appointed an Inter-Departmental Committee to prepared a scheme for the establishment of the proposed Bureau. After consideration of the report of this Committee the Government instructed the Minister of Reconstruction, in consultation with the Secretaries of State for the Colonies and India, to give effect to the recommendations of the Imperial Conference and the findings of the Committee. It is now announced that the Bureau will be incorporated by Royal charter, and the governing body, which will be under the presidency of the Lord President of the Council, will consist of the following:—Chairman, Sir Richard Redmayne, K.C.B.; nominated by the Canadian Government, Dr. W. G. Miller; Commonwealth of Australia, Mr. W. S. Robins; New Zealand, Mr. T. H. Hamer, of the High Commissioner's Office; Union of South Africa, the Rt. Hon. W. P. Schreiner, C.M.G.; Newfoundland, the Rt. Hon. Lord Morris, K.C.M.G.; India, Mr. R. D. Oldham, F.R.S.; nominated by the Secretary for the Colonies, Dr. J. W. Evans; nominated by the Minister of Reconstruction (in consultation with the Institution of Mining and Metallurgy, the Institute of Metals, the Iron and Steel Institute, and the Institution of Mining Engineers), Mr. W. Forster Brown (Mineral Adviser to H.M. Woods and Forests), Prof. H. C. H. Carpenter (president of the Institute of Metals), Dr. F. H. Hatch (member of the Mineral Resources Advisory Committee of the Imperial Institute), Sir Lionel Phillips (lately Director of the Mineral Resources Development Department, Ministry of Munitions), Mr. Edgar Taylor (ex-president of the Institution of Mining and Metallurgy), and Mr. Wallace Thorneycroft (president of the Institution of Mining Engineers). Mr. Arnold D. McNair has been appointed secretary. All communications regarding the Bureau should be addressed to the Secretary, Imperial Mineral Resources Bureau, Holborn Viaduct Hotel, E.C.1.

AMONG the recent additions to the Municipal Museums, Hull, we notice the collection of birds' eggs, land, fresh-water, and marine shells, all from Lincolnshire, formed by the late John Beaulah, of Ravensthorpe; also two very large narwhal tusks, and an excellent model of the railway engine *Victoria* and tender, dated 1859, which was shown at the Great Exhibition in 1861, bequeathed by the late H. Astropp.

MR. A. J. LOSEBY, the veteran Registrar of the Market Bosworth County Court, has sent us a copy of his work entitled "The Great Hereafter and the Road to Perfection" (London: A. H. Stockwell, price 1s.). Though the subject lies outside the usual range of this journal, we cannot help remarking on the manner in which the elemental aspirations of humanity are dealt with in these blank-verse narratives, which maintain a high level by their dignified simplicity. The story of the triumph of motherhood in the midst of horrors that creep upon a flaming world is Dantesque without being imitative.

THE Museum Journal of the University of Pennsylvania (vol. viii., No. 4, December 1917) is devoted to an account by Mr. C. S. Fisher of the work done by the Egyptian expedition at Memphis financed by

Mr. Eckley B. Coxe, jun. Portions of the palace of Meremptah have been excavated with important results. On the daïs where the king's throne stood were found four large panels, each containing a bound captive—a negro, a Libyan, a Sardinian, and a fourth not yet identified. In the stratum assigned to Ahmose II. there was found a cache of gold and silver jewelry. At Dendereh was discovered a necklace composed of selected amethysts and carnelians, the large beads bearing the name of Sesostris I. (B.C. 1980–35) inscribed upon them.

IN *Folklore* (vol. xxix., No. 1) Mrs. M. A. Holland, in a paper entitled "The Influence of Burial Customs on the Belief in a Future State," examines Sir James Frazer's well-known paper, "On Certain Burial Customs as Illustrating the Primitive Theory of the Soul" (Journal of the Anthropological Institute, 1885). The author examines this theory from the pre-animistic point of view, and discusses certain customs associated with burial and the modes adopted by early man for the disposal of the corpse. As an illustration of the method of inquiry, she inquires why, according to Plutarch, an exile, reported to be dead, for whom funeral ceremonies have been performed, may not re-enter his house through the door, but must find a way through the roof. The hitherto accepted explanation is that he is still officially dead, must be considered a ghost, and as such it is physically impossible for him to cross the threshold, which has been rendered ghost-proof by a mystic barrier of fire and water. But the more primitive motive may have been that he was regarded as uncanny because, officially speaking, he had been once dead, and so must not be given the chance of contaminating a holy place like the threshold. The paper gives a good *résumé* of the more recent views on animism, and deserves study.

SINCE the house-fly has been clearly recognised as a great danger to the health of the community much attention has been paid to a study of its habits, and particularly to the conditions which are favourable for breeding. One aspect of the subject—the over-wintering of the house-fly—is dealt with in an article by Mr. R. H. Hutchison in the *Journal of Agricultural Research* (vol. xiii., No. 3). The conclusion of the author, after about three years' experimental work on the subject, is that there is no evidence to show that house-flies persist as adults in houses or stables from November to April, for a temperature lower than 32° F. is fatal if continued for any length of time. On the other hand, if flies find access in the autumn to buildings such as restaurants, where insufficient attention is given to the disposal of kitchen waste, they will continue breeding throughout the winter. In such cases the flies present in March or April, which are the offspring and not the survivors of those which found their way into such places in the preceding autumn, will escape on warm days and produce the hordes which appear late in May. From experiments with larvæ and pupæ, and from the fact that house-flies do not appear in large number until late in May, the author concludes that only a small percentage of the larvæ present in manure-heaps in the autumn live through the winter to give rise to adults in the spring. These conclusions emphasise once more that the proper disposal of kitchen waste is the only effectual method of attacking the house-fly.

MR. R. S. LULL (*Amer. Journ. Sci.*, vol. xlv., p. 337, 1918) describes under the new name Laoporus a number of quadrupedal tracks from Carboniferous strata in the Grand Cañon of the Colorado River. In referring some smaller impressions to Exocampe, a genus known in the Trias of Connecticut, the author remarks that these tracks are surely not reptilian, nor are they proved to be amphibian. He places them in Williston's Protopoda, a group so far known only by its footprints.

THE subject of the deposition of flint is further pursued by Mr. R. S. Dean in reference to the Missouri cherts (*Amer. Journ. Sci.*, vol. xlv., p. 411, 1918). It is urged that the association of carbon dioxide with the silica hydrosol in the presence of calcium carbonate leads to the formation of an acid carbonate that becomes readily dissociated. Calcium ions thus arise and precipitate colloidal silica, with greater effect than the hydrogen ions of less valency that are formed from the dissociation of carbonic acid. Experiment shows that without carbon dioxide a colloidal silica solution may remain stable in the presence of ground calcite for more than a year, while the presence of carbon dioxide promotes precipitation in an hour. In Mr. Dean's experiments actual silicification of the calcite did not occur, but in this matter the author regards time as an important factor.

THE Agricultural Statistics of India (vol. i.) for 1915–16 were published early this year by the Government Printing Office, Calcutta Considerable progress has been made since 1906–7; the total number of bovine livestock has increased by 60 per cent., and is now 149 millions; the totals for "cultivable area" and "net area cropped" show a steady increase. The areas devoted to cotton and jute suffered a decline (exceeding 25 per cent.) from the previous year, probably caused by a fall in price due to the war. On the other hand, the area under indigo (chiefly in Madras Province) was more than doubled. It is reported that the official trials of the yield of the various crops indicate a general increase in the yield per acre since 1911–12; in the case of sugar-cane in Bengal the increase exceeded 16 per cent. The increased cotton yield in Sind (more than 20 per cent.) is ascribed to the use of Egyptian cotton-seed.

IRON, though a common component of thermo-couples, has the disadvantage of oxidising rapidly when exposed to temperatures beyond 500° C. It would be possible (according to O. L. Kowalke, in American Electro-chemical Society Proceedings, October, 1917) greatly to extend the use of iron in thermo-couples if a method could be devised of protecting it from oxidisation by a covering which would not appreciably affect the e.m.f. This result is achieved by "calorising" the iron, *i.e.* forming on its surface a coating of a rich alloy of aluminium. Iron so treated can be exposed to temperatures as high as 1000° C. without oxidising. Tests show that calorised iron when used with constantan gives the same thermo-e.m.f. as ordinary iron, and has a longer life.

IN the *Cairo Scientific Journal* (vol. ix., No. 101, 1917) is a paper by the late Sir Armand Ruffer on the use of natron and salt by the ancient Egyptians. Natron is a natural soda deposit consisting of impure sodium carbonate and bicarbonate, and the question of its use for the embalming of mummies by immersion in a natron bath, as indicated by Herodotus, has been investigated by chemical and microscopical methods. In the result it is agreed that salt and natron were used by embalmers, but no evidence was found that the bodies were placed in a natron bath or a salt bath. It is not intended to deny that the accounts given by Herodotus are correct; indeed, they are corroborated in some of the other details, and bear the stamp of truth, but it appears certain that no bodies prepared by the method Herodotus describes have been found so far.

According to the *Scientific American* for June 22, the American Government has received thousands of suggestions for the protection of sea-going vessels from attack by submarine. Often the same suggestion is made by many different inventors, the great majority of whom show a lamentable ignorance of the conditions which prevail at sea. Seven devices are illustrated, four of which consist of padding for the hull, which would either increase the resistance of the ship and diminish its speed greatly, or would be carried away by the first heavy sea. Another device deflects the torpedo below the keel, the inventor not appearing to know that it would be fired by the deflection. The other devices are for preventing the sinking of the vessel after she has been struck, and involve either an inner hull or a series of air-bags which can be pumped up and pulled under the side of the vessel struck. Would-be inventors of devices for this purpose might save themselves and the Government Departments much trouble by consulting this article.

Attention may be directed to a very useful article by Dr. P. E. Spielmann in the *Chemical Trade Journal* for July 6 and the three previous issues, giving a summary description of the constituents of coal-tar and their properties. A large number of substances has been found in coal-tar—from three hundred to four hundred, of which about one hundred and fifty have been determined quantitatively and ninety definitely isolated. On a large scale only four are separated as the pure individual substances, namely, benzene, toluene, naphthalene, and phenol, though others, such as xylenes, cresols, and the hydrocarbons of solvent naphtha, are used in considerable quantities in the form of mixtures of their homologues. The article, which is based upon a German account with additions and modifications, is designed to give a general survey of the lesser-known as well as the more valuable substances obtainable. By reason of the exploitation of the coal-tar industry in Germany the minute examination of the constituents of tar has so far been due largely to German chemists. The results obtained are of great value, and it is hoped that detailed and difficult work of this kind will in the immediate future be carried on in this country, since our chemists are fully capable of doing it. In any case, the information collected will prove serviceable.

The first of a series of articles on time studies for rate setting on machine tools appears in *Industrial Management* (*The Engineering Magazine*) for June. The author, Mr. Dwight V. Merrick, has had exceptional opportunities of studying this important subject. Some nineteen years ago he became associated with Dr. Taylor, and for the last fifteen years has specialised on the taking of time studies and the setting of tasks and rates. He also possesses the faculty of setting down in clear, concise style the knowledge he has gained during lengthy investigations, and his articles can be recommended confidently to any who wish to become further acquainted or to make personal experiments with Dr. Taylor's efficiency methods. Full instructions are given for the practical carrying out of time studies and for the analysis of the results. The matters dealt with include:—(*a*) Study of the work and conditions that influence its performance; (*b*) analysis of the work into its elements; (*c*) observing and recording the elapsed time for the performance of each of the elements; (*d*) study and analysis of the records obtained in (*c*); (*e*) determining a just time for the performance of each of the elements; (*f*) preparing from the time-study records an instruction card, including the determining of an allowance for fatigue and unavoidable delays. The first article includes formulæ and a set of interesting graphs giving the "variation allowance," *i.e.* the additions that must be made to the actual sum of the unit times in order to take care of the factors that slow down work. Fatigue is one of the major factors, and its influence is relatively diminished as the percentage of handling time is lessened for the complete cycle of operations. Those interested will find a great deal of valuable practical information in these articles.

Sir William Ramsay before his death had compiled a biography of Dr. Joseph Black, whose fundamental experiments on chemical combination and on heat made a lasting impression on science. This volume, with an introduction by Prof. F. G. Donnan on Sir William Ramsay himself, illustrated by sundry reproductions and portraits, is now in the press, and will be published by Messrs. Constable. Besides an account of Dr. Black's life and work, there are some of his letters and descriptions of academic life in Glasgow and Edinburgh of the eighteenth century.

Messrs. J. Wheldon and Co., 38 Great Queen Street, W.C.2, have shown enterprise in issuing a catalogue, called by them a "War Economy" catalogue, of books relating to botany likely to be of especial interest and service at the present time. It contains some 2000 items, arranged conveniently under the headings of Agriculture, Husbandry, and Gardening (general subjects), Cereals and Bread, the Flower Garden, Forestry, Timber, etc., Fruit and Fruit Trees, Grape Vine, etc., Grasses and Forage Plants, Herbals, Hybridity, Heredity, etc., Orchids, Vegetable Gardening, Economic Botany, and Medical Botany. It will doubtless appeal to many readers of Nature. Copies are obtainable from Messrs. Wheldon for the sum of twopence.

OUR ASTRONOMICAL COLUMN.

The New Star in Aquila.—The decline of the new star appears to be proceeding very slowly, the brightness on July 27 being still about equal to that of the neighbouring 4th magnitude star θ Serpentis. The visual spectrum, as observed by Prof. Fowler, has shown but little change during the past fortnight. The bright lines of hydrogen and the band λ 464 were very conspicuous throughout this period when observations were possible, and the green line about λ 501, which is possibly identical with the chief nebular line, was of nearly the same brightness as H_β. Three fainter lines in the yellow, about $\lambda\lambda$ 588, 576, and 568, also remained visible.

The General Magnetic Field of the Sun.—The results of a further investigation of the Zeeman effects due to the general magnetic field of the sun have been given by Messrs. Hale, Seares, Van Maanen, and Ellerman (*Astrophys. Journ.*, vol. xlvii., pp. 206–54). The photographs were taken in the third order of the 75-ft. grating spectrograph in connection with the 150-ft. tower telescope at Mount Wilson. With the aid of suitable polarising apparatus the observations are reduced to the measurement of line displacements, but these are so minute, and the lines so wide in comparison with their shifts, that definite evidence of the reality of the displacements has been established only after very great labour. It is satisfactory to find, however, that the twenty-six additional lines which